

REMARKS

Claims 1-10, 12-66, and 68-131 are pending after this amendment.

Applicants have amended claims 1, 3, 4, 13, 18-24, 30, 54, 55, 61, 62, 69, 74-78, 99, 102-108, 112, 124, 125, and 131 in order to more particularly define the invention. The amendments were not necessitated by the claim rejections. Applicants make no admission as to the patentability or unpatentability of the originally filed claims.

The amendments and remarks presented herein are in response to the Office Action dated March 12, 2004.

The Examiner rejected claims 1-131 under 35 U.S.C. 102(e) as being anticipated by Grefenstette. This rejection is respectfully traversed.

Claim 1, as amended, recites:

“ A computer-implemented method for unconscious data retrieval, comprising:
extracting at least one query key from a primary document;
responsive to a connection with at least one data source being available, pre-
fetching at least one query result by:
querying the at least one data source with the at least one query key;
and
receiving at least one query result from at least one data source;
evaluating the received at least one query result; and
displaying at least one received query result;
wherein extracting, querying, receiving, and evaluating are performed asynchro-
nously with respect to user interaction with the primary document;
and wherein displaying the at least one received query result is performed without
regard to whether a connection with a data source is available.

The claimed method provides a technique for unconscious data retrieval that operates asynchronously with respect to user interaction with the primary document.

Thus, the claimed method is capable of operating in the background, without interfering with the user and without affecting the user's normal operations in any way.

The invention formulates and executes queries to retrieve information in an asynchronous manner. Information is provided independently of any specific request by the user. As discussed in the specification at paragraph 0023, asynchronous retrieval does not require that the connection with the information source be active at the time the information is viewed by the user. The invention pre-fetches results when they are available and later displays them for the user. Query results are obtained when a connection to a data source is available. The received query results are displayed without regard to whether the connection is available. Thus, query results can be displayed even when there is no available connection to the source of the query results.

For example, the invention may formulate and execute a query based on an e-mail message when the message is received at an e-mail server or at a user's machine, even though the user is not currently logged on. If result items are received prior to the user viewing the e-mail message, the result items are cached so that they can be presented to the user when he or she views the message. Thus, the result items may be displayed even if the source of the result items is not available or disconnected at the time the user is actually viewing the e-mail message.

By contrast, Grefenstette merely describes a system and method for automatically generating queries by defining an organized classification of document content, identifying a set of entities for searching information, and formulating queries accordingly. Grefenstette assigns a "personality" to each document when it is created,

and manages that personality with a central database. The personality identifies entities (information fields) in the document and determines the information that is retrieved about them.

There is no hint or suggestion in Grefenstette of any technique for pre-fetching query results in the manner claimed herein. In particular, there is no discussion of any technique of obtaining data asynchronously with respect to user interaction with a document, and of displaying query results without regard to whether a connection is currently available, as claimed herein. Thus, Grefenstette fails to anticipate the claimed invention, and indeed fails to provide the distinct advantages provided by the claimed invention.

Claim 2 depends from claim 1 and incorporates all of the limitations of amended claim 1. Claim 2 further recites that "extracting, querying, receiving, and evaluating are performed in response to receiving the primary document." Thus, these steps are performed automatically when a document is received.

The Examiner stated that Grefenstette teaches this limitation at paragraphs 0405, 0406, and 0417. However, the cited paragraphs merely disclose the mechanics of extraction features, deriving a list of personalities, classifying a document, and ranking personalities. Also discussed in these portions of Grefenstette are techniques for tailoring personality recommendations for particular users, and linking results to original terms and entities in document content. Accordingly, Applicants respectfully submit that Grefenstette fails to disclose the specific limitations recited in claim 2, incorporating the limitations of amended claim 1.

Claim 3 depends from claim 1 and incorporates all of the limitations of amended claim 1. Claim 3 further recites that "displaying at least one received query result is performed in response to accessing the primary document." Thus, the claim recites a technique whereby query results are pre-fetched when a data source connection is available, and are displayed when the primary document is accessed. Such a technique provides greater efficiency and improves responsiveness, as pre-fetched results can be presented to the user more quickly than results that need to be obtained in real-time.

Grefenstette fails to teach any such limitation. Paragraphs 0232-0234, which were cited by the Examiner, merely disclose a personality creation process and entity database construction. These elements have nothing to do with the specific steps recited in claim 3. There is no mention in the cited portion of Grefenstette of any technique of displaying results in response to document access. Accordingly, Applicants respectfully submit that Grefenstette fails to disclose the specific limitations recited in claim 3, incorporating the limitations of amended claim 1.

Claim 4 depends from claim 1 and incorporates all of the limitations of amended claim 1. Claim 3 further recites that "displaying at least one received query result is performed in response to displaying the primary document." Thus, the claim recites a technique whereby query results are pre-fetched when a data source connection is available, and are displayed when the primary document is displayed. Such a technique provides greater efficiency and improves responsiveness, as pre-

fetches results can be presented to the user more quickly than results that need to be obtained in real-time.

The Examiner stated that Grefenstette teaches this limitation at paragraphs 0405, 0406, and 0417. However, the cited paragraphs merely disclose the mechanics of extraction features, deriving a list of personalities, classifying a document, and ranking personalities. Also discussed in these portions of Grefenstette are techniques for tailoring personality recommendations for particular users, and linking results to original terms and entities in document content. Accordingly, Applicants respectfully submit that Grefenstette fails to disclose the specific limitations recited in claim 4, incorporating the limitations of amended claim 1.

Claims 5-10, 12, 26-29, 32-53, 56-60 depend from claim 1 and incorporate all of the limitations of amended claim 1. Thus, the arguments presented above with respect to claim 1 apply to these claims as well.

These claims recite additional features that are not found in Grefenstette. For example, claim 5 further recites that "the primary document comprises an electronic communication." The Examiner stated that Grefenstette teaches this limitation at paragraphs 0151-0152. However, the cited paragraphs make no mention of the primary document comprising an electronic communication. Rather, these paragraphs describe a coordination system to orchestrate concurrent execution of scheduler functions, a visualization and interaction system, and a learning system to observe user interaction with a document.

As another example, claim 6 further recites that “the primary document comprises an e-mail message.” The Examiner stated that Grefenstette teaches this limitation at paragraph 0192. However, the only mention of e-mail in the cited paragraph is a reference to the fact that the meta-document server delivers a notice by e-mail to an identified user. There is no description of the primary document comprising an e-mail message, as claimed herein.

As another example, claim 12 further recites “storing the evaluated at least one query result” and “retrieving the stored at least one query result.” Thus, asynchronous query result retrieval and display is facilitated by storing the results until they are to be displayed. The Examiner stated that Grefenstette teaches this limitation at paragraphs 0250 and 0255. However, the cited paragraphs make no mention of storing or retrieving query results. Rather, these paragraphs discuss an input form, depicted in Fig. 19 of Grefenstette, as a front end for a content provider of scientific material, and further discuss constructing queries to be executed at content providers.

As another example, claim 27 further recites that “evaluating the received at least one query result comprises determining whether the query result has previously been displayed.” Thus, a determination is made as to whether a query result should be displayed, based on whether or not the result has previously been displayed. The Examiner stated that Grefenstette teaches this limitation at paragraphs 0418, 0419, and 0435. However, the cited paragraphs merely describe contextualizing a query using classification labels, and augmenting a query using a category vocabulary. There is no hint or suggestion of determining whether a particular query result has previously been displayed, as claimed herein.

As another example, claim 28 further recites that “evaluating the received at least one query result comprises determining whether the query result is sufficiently relevant with respect to a predetermined relevancy threshold,” and that “displaying at least one received query result comprises displaying a query result responsive to the determination indicating that the query result is sufficiently relevant.” Thus, a determination is made as to whether a query result is sufficiently relevant; the result is displayed in response to an indication of sufficient relevance. The Examiner stated that Grefenstette teaches this limitation at paragraphs 0282-0283. However, the cited paragraphs merely describe an example of enriching a document by providing a result, and linking the entity in the document with the instantiated query and the answer. There is no hint or suggestion of determining relevance in the manner claimed herein, nor of displaying a query result responsive to the relevance determination.

As another example, claim 42 further recites that “at least one of the data sources is intermittently connected via a network.” Thus, the claimed method operates to retrieve data in an environment where data sources are only intermittently available. The Examiner stated that Grefenstette teaches this limitation at paragraph 0007. However, the cited paragraph is merely a background description providing a definition of the terms “agent” and “intelligent agent”. There is no hint or suggestion in the cited portion of Grefenstette of any technique for performing unconscious data retrieval by querying data sources that are intermittently connected, as claimed herein.

Claim 11 has been canceled.

Claim 13, which has been amended merely to place it in independent form, recites:

“ A computer-implemented method for unconscious data retrieval, comprising:
extracting at least one query key from a primary document;
querying at least one data source with the at least one query key;
receiving at least one query result from at least one data source;
evaluating the received at least one query result;
storing the evaluated at least one query result; and
subsequently performing the steps of:
 receiving a query request from a user;
 displaying a preview of at least one query result item responsive to
 the received query request;
 receiving a selection of one of the previewed items;
 retrieving the selected item; and
 displaying a representation of the selected item;
wherein extracting, querying, receiving, and evaluating are performed without user interaction.”

The claimed invention thus presents relevant information in a query preview interface, which combines functionality for constructing queries with a display of query results. Results are presented in an interactive manner that responds in real-time to user queries. The user is presented with a preview of query result items and can select one of them; the selected item is then retrieved and displayed.

Grefenstette provides no description of any such functionality. The cited portion of Grefenstette (paragraph 0571) merely describes enhanced queries designed to focus on particular categories of a search engine. There is no hint or suggestion of any query preview interface as claimed herein.

Claims 14-17 depend from claim 13 and incorporate all of the limitations of amended claim 13. Thus, the arguments presented above with respect to claim 13 apply to these claims as well.

These claims recite additional features that are not found in Grefenstette. For example, claim 14 further recites that "retrieving the selected item comprises retrieving the item from a cache," while claim 15 recites that "retrieving the selected item comprises retrieving a text version of the item from a cache." The Examiner stated that Grefenstette teaches these limitations at paragraphs 0578-0579. However, the cited paragraphs make no mention of retrieving an item from a cache in the manner claimed herein. Rather, these paragraphs describe various hardware components of a system for implementing the techniques of Grefenstette, including for example a CPU, RAM, ROM, user I/O, and the like.

Claim 18, which has been amended merely to place it in independent form, recites:

"A computer-implemented method for unconscious data retrieval, comprising:
extracting at least one query key from a primary document;
transmitting a query over a network to at least one data source with the at
least one query key;
receiving at least one query result from at least one data source;
evaluating the received at least one query result; and
displaying at least one received query result;
wherein extracting, querying, receiving, and evaluating are performed without user
interaction."

The claimed method transmits a query over a network to at least one data source. In this way, the claimed invention facilitates data retrieval from a number of diversely located sources. The query is transmitted using known techniques of network transmission, as discussed in the specification.

Claim 19 depends from claim 18, and incorporates all of the limitations of amended claim 18. Claim 19, as amended, further recites "transmitting an e-mail message containing the query to the at least one data source." By transmitting an e-mail message containing the query, the present invention makes use of existing electronic communication protocols, and thereby ensures that queries can be transmitted via a wide variety of communication architectures and understood by a wide variety of data sources.

Grefenstette fails to describe any technique for transmitting a query over a network as recited in claim 18, nor does it describe transmitting an e-mail message containing a query as recited in claim 19. The Examiner stated that Grefenstette teaches "an electronic communication" at paragraphs 0151-0152. However, the cited portion of Grefenstette merely describes other functions such as a coordination system, a visualization and interaction system, and a learning system. This portion of Grefenstette further describes the notion that the meta-document may be physically stored as a number of destination. There is no hint or suggestion of transmitting a query over a network as claimed herein, nor of transmitting an e-mail message containing a query.

Claims 20 to 23 depend from claim 18, and incorporate all of the limitations of amended claim 18. Thus, the arguments presented above with respect to claim 18 apply to these claims as well.

These claims recite additional features that are not found in Grefenstette. For example, claim 20 recites that "transmitting the e-mail message to the at least one

data source comprises transmitting the e-mail message across a firewall" (emphasis added). Thus, the present invention is able to query data sources even when they reside behind firewalls. Grefenstette contains no hint or suggestion of transmitting an e-mail message containing a data source query across a firewall. In fact, nowhere in Grefenstette does the word "firewall" appear.

As another example, claim 22 recites "receiving an e-mail message containing at least one query result." By receiving an e-mail message containing the result, the present invention makes use of existing electronic communication protocols, and thereby ensures that query results can be received via a wide variety of communication architectures and generated by a wide variety of data sources. Grefenstette fails to describe any technique for receiving an e-mail message containing at least one query result as recited in claim 22.

Claim 24, which has been amended merely to place it in independent form, recites:

"A computer-implemented method for unconscious data retrieval, comprising:
extracting at least one query key from a primary document;
querying at least one information appliance with the at least one query key;
receiving at least one query result from at least one information appliance;
evaluating the received at least one query result; and
displaying at least one received query result;
wherein extracting, querying, receiving, and evaluating are performed without user interaction."

The claimed method queries at least one information appliance and receives at least one result from at least one information appliance. Grefenstette fails to teach or disclose any technique for querying information appliances. The Examiner states

that Grefenstette teaches information appliances at paragraph 0144; however, the cited paragraph merely discloses standards for attaching metadata, and does not contain any description of the type of data sources to which a query is directed.

Claim 25 depends from claim 24, and incorporates all of the limitations of amended claim 24. Thus, the arguments presented above with respect to claim 24 apply to these claims as well. Claim 25 lists a number of examples of information appliances, including:

- “a visitor kiosk;
- a meeting recorder;
- a presentation recorder;
- a whiteboard capture device;
- a communication device; and
- a document management device.”

The Examiner states that Grefenstette teaches these components at Fig. 55; however, the cited Figure merely depicts an interface for specifying meta-document exchange. The interface provides fields and buttons for specifying a document, and for selecting various options related to import and export. There is no description of any type of data sources or information appliances, and there is no indication that the invention includes any of the specific examples recited in claim 25.

Claim 30, which has been amended merely to place it in independent form, recites:

- “A computer-implemented method for unconscious data retrieval, comprising:
 - extracting at least one query key from a primary document;
 - querying at least one data source with the at least one query key;
 - receiving at least one query result from at least one data source;
 - evaluating the received at least one query result;
 - displaying at least one received query result;

determining whether an additional query should be performed; and responsive to a determination that an additional query should be performed: formulating an additional query containing at least one secondary query key; querying at least one data source with the at least one secondary query key; receiving at least one secondary query result from at least one data source; and displaying at least one received secondary query result; wherein extracting, querying, receiving, and evaluating are performed without user interaction."

Claim 31, which depends from claim 30 and incorporates all of the limitations of amended claim 31, further recites "formulating an additional query comprising at least one query key from the primary document and at least one secondary query key."

The present invention thus provides multi-stage queries by performing an initial query, and then inferring likely additional sources of information which are then queried using the original query terms and/or additional terms. For example, a person's name may be extracted from a received e-mail and utilized in forming an initial query. Results received in response to the initial query, such as the name of the person's employer (as provided by a contact list or address book, or from a company directory), can be used to formulate a subsequent query of additional information appliances. The subsequent query may then be executed, either alone or in conjunction with elements of the initial query, so as to provide more robust results. This multi-stage, or "cascading," query technique may be repeated as many times as is appropriate in order to take advantage of multiple sources of data as may be available in different formats, structured in different ways, and stored at different locations in the network.

Grefenstette contains no hint or disclosure of any such technique. The Examiner cited paragraphs 0483-0485, but these paragraphs merely describe auto-completion (a feature that automatically completes a word after the user has entered the first few characters of the word). Specifically, the cited paragraphs describe techniques for reducing the search space for auto-completion functionality. Applicants respectfully submit that the auto-completion feature described in the cited portion of Grefenstette is completely unrelated to the multi-stage query method recited in claims 30-31.

Claim 54, which has been amended merely to place it in independent form, recites in part, "displaying at least one received query result in a calendar display." The calendar display provides a useful mechanism for providing results to the user in a clear and usable format. Grefenstette contains no hint or disclosure of any such technique. The Examiner cited paragraphs 0162, 0505, and 0506, but these paragraphs merely describe inserting stock quote results into a document markup, query formulation techniques, and evaluation criteria. These concepts are in no way related to the calendar display technique recited in claim 54.

Claim 55, which has been amended merely to place it in independent form, recites in part, "displaying at least one received query result in a user-activated toolbar menu." This type of display provides a useful mechanism for providing results to the user in a clear and usable format without consuming excess screen real estate. Grefenstette contains no hint or disclosure of any such technique. The Examiner

cited paragraphs 0219-0220, but these paragraphs merely describe a personality selection interface. These concepts are in no way related to the user-activated toolbar menu display technique recited in claim 55.

Claim 61, which has been amended merely to place it in independent form, recites:

“A computer-implemented method for unconscious data retrieval, comprising:
extracting at least one query key from a primary document;
querying at least one data source with the at least one query key;
receiving at least one query result from at least one data source;
evaluating the received at least one query result; and
recognizing user-entered text as having a format corresponding to a predefined data type;
displaying a menu comprising at least one command applicable to the data type; and
responsive to user selection of one of the at least one command, displaying at least one query result;
wherein extracting, querying, receiving, and evaluating are performed without user interaction.”

The claimed method recognizes user-entered text according to its data type, and displays a menu containing commands applicable to the data type. Responsive to user selection of a command, query results are displayed. Thus, the invention provides a method for easily accessing and displaying query results that are of interest to the user.

Grefenstette contains no hint or disclosure of any such technique. The Examiner cited paragraphs 0522, but this paragraph merely describes an insert button and directed search. This functionality is in no way related to the technique recited in claim 61.

The remarks presented above apply to parallel system claims 62-66 and 68-98 and computer program product claims 99-131.

Claim 67 has been canceled.

On the basis of the above amendments, consideration of this application and the early allowance of all claims herein are requested.

Should the Examiner wish to discuss the above amendments and remarks, or if the Examiner believes that for any reason direct contact with Applicants' representative would help to advance the prosecution of this case to finality, the Examiner is invited to telephone the undersigned at the number given below.

Respectfully submitted,
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By: 

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